Clinical Management Guidance for Mild Traumatic Brain Injury – Acute

Non-Deployed Care

TRAUMATIC EVENT

~Concussion Suspected~

1. Perform MACE
2. Confirm mTBI:
   a. ***Injury Event*** *(**blast, fall, motor vehicle collision (MVC), head impact**)*
   AND
   b. ***Alteration of Consciousness*** *(**dazed, confused or loss of consciousness even momentarily**)*

Evaluate for Red Flags[a]
Perform Neuro Exam
CT Scan
Administer ANAM[b]

Are Red Flags[a] present or is CT Scan positive?

Yes → ***Urgent referral to Neurology, Neurosurgery, or Emergency Room as appropriate***

No

[a] **Red Flags:**
1. **Progressively declining level of consciousness**
2. **Progressive declining neurological exam**
3. **Pupillary asymmetry**
4. **Seizures**
5. **Repeated vomiting**
6. **Double vision**
7. **Worsening headache**
8. **Cannot recognize people or disoriented to place**
9. **Behaves unusually or seems confused and irritable**
10. **Slurred speech**
11. **Unsteady on feet**
12. **Weakness or numbness in arms / legs**

[b] **Administer ANAM:** If injury is over 24 hours old and if ANAM is available.

Positive findings on Neuro Exam, ANAM[b], or MACE Score <25 or symptoms from Item VIII?

Yes → ***Primary Care Management***
1. Manage symptoms[c]
2. Provide Education
3. Profile – 7 days
4. Re-evaluate symptoms (Item VIII) and re-administer ANAM[b] within 7 days
5. Consider Neurology referral if clinically indicated

[c] **Treatment:**
1. Give educational sheet to all mTBI patients.
2. Headache management - use Acetominophen.
3. Avoid tramadol, narcotics, NSAID's, ASA, or other platelet inhibitors until CT confirmed negative.

Exertional Testing Protocol
. 65-85% Target Heart Rate (THR = 220-age)
-using push-up, step aerobic, treadmill, hand crank
. Assess for symptoms (headache, vertigo, photophobia, alance, dizziness, nausea, tinnitis, visual changes, response to bright light or loud noise)

No

Continued symptoms or abnormal ANAM on re-evaluation?

Yes → **1. 30 day profile**
2. Go to Sub-Acute CMG

No

Perform Exertional Testing[d]

Positive symptoms with exertional exercise testing[d]?

Yes →
1. Provide Education
2. Profile – 7 days
3. Repeat exertional testing[d] in 24 hours

Positive symptoms on exertional testing[d]?

Yes → Repeat exertional testing[d] & re-evaluate symptoms in 7 days

Any emergent symptoms, persistent symptoms with exertion?

Yes → **1. 30 day profile**
2. Go to Sub-Acute CMG

No → Reinforce Education
Return to Duty

No → Reinforce Education
Return to Duty

No → Provide Education
Return to Duty

ICD-9 Codes
850.0 concussion w/o LOC
850.11 Concussion w/ LOC <30 min
850.12 Concussion w/ LOC 31-59 min
E979.2 Injury from terrorist

Clinical Management Guideline Mild Traumatic Brain Injury – Sub-Acute

ossible Sub-Acute mTBI
ver 7 days post trauma)

High Risk Group:
1. Injury caused by explosion
2. Injury from fall, MVC, GSW above shoulders

Evaluation:
. Administer Symptom and History Questionnaire – *Pg. 3*
. Record history – previous trauma / current exposure
. Perform Neuro Exam
. Administer ANAM[a]
. Identify Symptom Cluster(s) *[Headache, Balance, Sleep, Irritability, Memory]* – ***Pg. 2***
. Perform additional Symptom Cluster assessments as indicated– ***Pg. 2***

Are Red Flags[b] Present? — Yes
1. Urgent CT Scan
2. Referral (as indicated by symptom cluster)
3. Provide Education

No

Confirmed mTBI?[c] — Yes
CT Scan Indicated[d]? — Yes — Order CT Scan
Positive CT Scan? — Yes
1. Neurology Referral (24 hr)
2. Provide Education

No
. Provide Education
. RTD

No
No
Symptomatic? — Yes
1. Manage symptom cluster– ***Pg. 2***
2. Provide Education
3. Profile – up to 3 months
3. Periodic re-evaluation (e.g., every 3 months)
4. Determine final disposition at 12 months or sooner

No
1. Provide Education
2. RTD

mTBI Disposition Decision

	Symptomatic	Disabling Symptoms
Resolving / Responding	**Retain**	**1. Gather collateral information: ANAM, time in service, unit & family feedback** **2. Ensure sufficient trial of OT/PT Rehab** **3. Consider MEB – 12 months**
No Change		**1. Consider MEB – 6 months with collateral information** **2. Initiate MEB – NLT 12 months**
Worsening		

[a] If ANAM is available

[b] **Red Flags:**
1. Progressively declining level of consciousness
2. Progressive declining neurological exam
3. Pupillary asymmetry
4. Seizures
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850.0 concussion w/o LOC
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E979.2 Injury from terrorist explosion blast

[c] **Confirm mTBI:**
a. ***Injury Event*** *(**blast, fall, MVC, head impact**)*
AND
b. ***Alteration of Consciousness*** *(**dazed, confused or loss of consciousness even momentarily**)*

[d] **CT Scan Criteria:** CT Scan is indicated in mTBI patients with headache, vomiting, drug or alcohol intoxication, defecits in short term memory, physical evidence of trauma above the clavicle, dizzienss, dysequilibrium, or age >60.

Proponency Office for Rehabilitation and Reintegration –

Symptom Cluster	***Presenting Symptoms or Complaints – Assess frequency, severity, aggrevating factors***	***Special Assessments by Symptom Cluster***	***Assessment Red Flags***	***Treatments by Symptom Cluster***
Headache	Headache, sensitivity to bright light or loud noise, nausea, tinnitus, vision problems	**Examine**: fundascopic, pupils, visual acuity, extraocular, cerebellar/ coordination (e.g., finger to nose, rapid alternating movements), deep tendon reflexes (DTRs), gait, motor/sensory, trigger points (neck, greater occipital nerve) **REFER:** Any abnormality – 24 hours referral to Neurology **•ALL dosing and medications listed in this table are suggestions.** **•Inclusion in this guidance does NOT imply an FDA approved indication.** **•See full prescribing information for details of medication indications, contra-indications, dosing, side-effects, and cautions.**	Worse/ worsening / uncontrolled headache, fever, stiff neck, blackout, seizures **REFER:** Urgent referral to Neurology	**Preventive Treatment*:** *(guided by comorbid conditions):* **Insomnia:** tri-cyclic anti-depressants, e.g., Amitryptiline (Elavil) or Nortryptiline (Pamelor) – 10-25 mg QHS starting and increasing every 1-2 weeks prn up to 50-75 mg. **Hypertension**: consider Propanolol (Inderal) - 50 mg q day up to 180 mg q day or other beta blocker. **Neuropathic Pain:** consider Gabapentin (Neurontin): 300 mg BID up to 900 mg TID. **Regardless of selection of preventive therapy, should have trial of treatment of 4-6 weeks before considered ineffective.* **Symptomatic Treatment** (prn at HA onset, up to 3 days/week): Motrin 600-800 mg,; Naprosyn; Fiorinal/Fioricet; Triptans **Avoid:** Narcotics, Tylenol, Excedrin, Fioricet in patients with daily headache due to the risk of rebound headache. **REFER** to Neurology if patient fails trial of two preventive treatments.
Balance	Balance, dizziness, coordination problems, ringing in the ears	**Examine:** *Dix-Hallpike Maneuver, Romberg,* nystagmus, positional / postural balance, cerebellar/ coordination (e.g., finger to nose, rapid alternating movements), ENT – otoscopic exam, bedside hearing test, review audiogram if available. **REFER:** Any abnormality – 24 hours referral to Neurology	Lateral abnormality, nystagmus **REFER:** Urgent referral to Neurology	**REFER** to Physical Therapy
Sleep	Fatigue (physical and/or mental), sleeplessness, sleep disturbances, nightmares, sleep walking	Administer: *Epworth Sleepiness Scale* **History / Symptom questions**: difficulty falling asleep, difficulty staying asleep, acting out in sleep (sleep walking), nightmares, falling out of bed, confusion, frightened arousal, non-restorative sleep **Examine:** neck size, airway	Apnea **REFER:** Urgent referral to Neurology, Pulmonary Medicine, or other Sleep Lab.	**First Choice** – without other associated symptoms: 7-14 day trial of Trazodone (Desyrel) 25 - 125 mg qHS (response should be seen within 1-14 days). **Comorbid Conditions**: **Nightmares or other PTSD-related symptoms**: trial of Quetiapine (Seroquel) – dosage starting at 25 mg q hs tapered up to 100 mg over a period of one week (increase every 2 days if no improvement seen up to 100 mg; stabilize at 100 mg for one week before considering ineffective); **Headaches:** trial of Amitriptyline (Elavil) starting at 10 mg q hs and titrated up to doses of 75 – 100 mg if needed, complete trial of 6-8 weeks before considering ineffective. **REFER** to psychiatry if medication trials are ineffective.
Irritability	Anger, depression, anxiety, mood swings	**Administer:**, *PCL-M, Screening questionnaire, Beck's inventory* **Specific history / symptom questions:** physical fighting, alcohol intake, relationship problems, suicidal, homicidal **REFER:** Any abnormality – 24 hours referral to Psychiatry, Psychology, Social Work	Outward violence (not just arguing), physical fighting, alcohol intake, relationship problems, suicidal, homicidal. **REFER:** Urgent referral to Psychiatry	6 week trial of SSRI / SNRI: **SSRI considerations:** Sertraline (Zoloft) 50 - 150 mg po q day; Citalopram (Celexa) 20-60m mg po q day; or Escitalopram (Lexapro) 10-40 mg po q day. **SNRI considerations:** Venlafaxine (Effexor XR)–start 37.5 mg q day and titrate by 37.5 mg/week up to 150 mg q day. **REFER** to Psychiatry if does not respond after 6 week trial.